canals bifurcate and unite with each other by the branches thus formed; at this point these vessels emit numerous branches, which ramify upon the inferior surface of the disk and flow into a double circular vessel which runs along the margin of this disk.

Besides these lateral vessels, the circulatory apparatus includes a median ventral vessel enveloping the nervous system. At the anterior part this vessel gives origin to a ring, the ramifications of which unite with those proceeding from the two superior lateral vessels; at the hinder part this ventral vessel passes above the canals which unite the lateral vessels, and gives origin to numerous ramifications which open into the circular vessels of the margin of the disk.

Nervous system.—The nervous system, which is very like that of *Clepsine*, besides the cerebrum and the posterior mass, consists of eighteen ganglia, each formed of two pairs of large lateral vesicles, and two rather smaller ventral vesicles placed one behind the other. Each ganglion emits on each side a single nerve, which shows itself further on.

The eyes, two in number, are very large, of an orange colour and cup-like shape.

The integuments, especially in the anterior part, are very rich in large glandular cells with granular contents.

The very peculiar arrangement of the circulatory and digestive apparatus, as we have just described them, appear to us to combine a set of characters sufficient to authorize the formation not only of a genus but also of a family. This family, the position of which seems to be indicated in the neighbourhood of the Rhynchobdellidæ, we shall designate by the name of Lophobdellidæ, derived from the word *Lophobdella* (from λόφος, a tuft, and βδέλλα, a leech), which we propose as the name of the genus. The species from Senegambia and the African rivers may be inscribed under the name of *Lophobdella Quatrefagesi.*—*Comptes Rendus*, June 30, 1884, p. 1597.

On a new Type of Elastic Tissue observed in the Larva of Eristalis. By M. H. Viallanes.

There are few naturalists who have not had occasion to observe the singular movements of the respiratory tube which terminates the body of the larvæ of *Eristalis*. This tube, which is composed, like a telescope, of cylinders fitted one into the other, can, at the pleasure of the animal, be greatly shortened or lengthened to seek the air at the surface of the water. The elongation of the respiratory tube is effected by means of the contractions of the body, which drive the cavitary liquid into it. Its shortening is produced by special muscles and by elastic bands lodged in its interior.

It is to the structure of these latter parts, which, at least so far as I know, have not been investigated, that I wish now to call attention. Each of these elastic bands is a single cell, but constructed in such a way as to perform the part of a thread of india-rubber. One of these elements, examined in a half-retracted state and in the blood of the animal, presents the following characters:—its cell-body is fusiform; one of its extremities is attached to the

neighbouring integuments, the other drawn out into a long process, which is likewise attached to the inner surface of the respiratory tube. The cell and its prolongation are lined with a thick but very elastic membrane. In the centre of the cell-body we observe a very large spherical nucleus; this is surrounded by an abundant protoplasm which fills the whole cell as well as its process. It must be noted that around the nucleus the protoplasm is opaque and strongly granular, while elsewhere it is transparent.

In the interior of the element that we have just described there is developed a long elastic fibre, exactly similar in physical properties to the elastic fibres which are observed in the cervical ligament of a mammal for example. It appears, in fact, under the aspect of a perfectly cylindrical refractive thread, rectilinear when stretched, curled and coiled up when left to itself; further it may be remarked that it is unalterable by acetic acid and by potash.

In the cell that we have described above the elastic fibre is coiled upon itself a great number of times around the nucleus, in the granular part of the protoplasm, and extended in a straight line into the prolongation of the cell, at the extremity of which it terminates. The elastic fibre is attached by one of its ends to the terminal extremity of the prolongation; by the other it amalgamates with and attaches itself to the protoplasm of the cell by means of a sort of branched enlargement.

When traction is applied to the prolongation of the cell the latter stretches out entirely, and at the same time the coiled portion of the fibre is unrolled; if it be left to itself it shortens, at the same time that the fibre coils up again in the cell-body.

The facts just described seem to me to be interesting upon various accounts. In the first place they prove once more to what degree of complexity a simple cell may attain; in the second, they seem to me to throw a new light upon the morphology of the elastic tissue, since they show us that in this tissue the active part, the elastic fibre, may be developed either in the intercellular substance (Vertebrata) or in the protoplasm of the cells themselves, as I have just described in *Eristalis*.

I may remark that striated muscular tissue presents analogous variations, since we see its active parts, the fibrillæ, sometimes belonging really to the protoplasm of distinct cells (striped muscular fibres of the heart), sometimes developed at the expense of the fundamental undivided substance which separates the musculogenous cells (alar muscles of insects).

Thus it would seem that one and the same tendency presides over the advance of the elastic tissue and that of the muscular tissue, since in both cases, in proportion as the advance is produced, we see the mechanically acting parts (elastic fibres, striped fibrils) quitting the protoplasm of the cells to which they belonged originally, to be developed in the intercellular substance and thus become the undivided property of neighbouring cellular elements.—*Comptes Rendus*, June 23, 1884, p. 1552.